

AMENDMENTS TO THE CLAIMS

Kindly cancel claims 1, 2 and 4

Kindly add new claims 24 and 25:

1. cancelled

2. cancelled

3. (currently amended): The quick-action clamping cylinder as claimed in claim 4 24, characterized in that the insert module (21-25) also has an internal seal (71) which prevents air or dirt from entering ~~getting into~~ the spring chamber containing said spring assembly, ~~of the spring (8).~~

4. cancelled

5. (currently amended): The quick-action clamping cylinder as claimed in claim ~~[[4]]~~ 24, ~~characterized in that~~ in which the adapter (43) is mounted without play in a centering recess (44) on the underside of the insert module (21, 25) in order thereby to ensure centering, likewise without play, of the quick-action clamping cylinder on an associated mounting surface.

6. (currently amended): The quick-action clamping cylinder as claimed in claim 4 24, ~~characterized in that the top face of the quick-action clamping cylinder can be covered by~~ comprising a cover plate (47), ~~and the latter is held by a corresponding securing ring (14).~~

7. (currently amended): The quick-action clamping cylinder as claimed in claim 4 24, characterized in that a central recess (34) of the quick-action clamping cylinder ~~can also be~~ is opened toward the bottom ~~in order thereby either~~ to ensure a downward flow of liquid, in arrow direction (51), or also to deliver corresponding air or coolant or ~~other~~ comparable media from below, in arrow direction (52).

8. (currently amended): The quick-action clamping cylinder as claimed in claim 4, 24, characterized in that said insert module is embedded in a machine bench having an upwardly central recess 54, a an inner circumference of the recess (54) ~~is used directly as constituting~~ a piston sealing surface and piston running surface for the piston (3), ~~and in that the insert module (21, 25) can be fitted in this central, upwardly open recess (54).~~

9. (currently amended): The quick-action clamping cylinder as claimed in claim 4 8, characterized in that the spring assembly (8) to be secured is held positioned directly under a radial projection on the a ball support member (56), and the piston runs sealingly, on the one hand, on a radial an outer face of said radial projection ~~the ball support (56)~~ and, on the other hand, on a radial inner face of the central recess (54).

10. (previously amended): The quick-action clamping cylinder as claimed in claim 9, characterized in that a stop ring (55) is fitted in the interior of the recess (54) and serves as a stop surface for the piston (3).

11. (currently amended): The quick-action clamping cylinder as claimed in claim 4 24, characterized in that ~~a piston (3) is arranged displaceably in the interior of the housing (4),~~ the piston (3) has a first forming an axially upwardly extended annular shoulder (17) whose radial outer faces bear with face that runs sealingly on associated O-rings on the associated inner wall of the lid (1), ~~and are sealingly and displaceably guided there.~~

12. (currently amended): The quick-action clamping cylinder as claimed in claim 4 11, characterized in that ~~the lower part of the piston (3)~~ has a second radial outer face that runs ~~is radially widened and bears sealingly on the inner circumference of the housing (4), so that a pressure chamber (16) for oil is formed between the underside of the lid (1), the annular shoulder of the piston (3) and the housing (4).~~

13. (currently amended): The quick-action clamping cylinder as claimed in claim 4 12, in which an upper annular surface of said ball support member is grooved to form a raceway supporting the balls when the balls are not engaging the feed nipple. ~~characterized in that a large number of balls (5) bear on the inner face of an axial annular shoulder (17) of the~~

~~piston (3), which balls (5), from this annular shoulder, are either moved radially inward to the feed nipple (2) or are moved away therefrom, for which purpose ball raceways are accordingly created on a ball support (6) and form depressions for the balls (5).~~

14. (currently amended): The quick-action clamping cylinder as claimed in claim 13, characterized in that, in the unlocked state of the quick-action clamping cylinder, the balls (5) lie in said raceway ~~the recessed ball supports~~ out of contact with ~~and accordingly are at a distance from the underside of the lid (1), but when this a radially outwardly directed shoulder of the feed nipple (2) has run past the ball (5), the latter then drops into the ball-shaped recess on the surface of the ball support (6).~~

15. (previously amended): The quick-action clamping cylinder as claimed in claim 14, in which the underside of the feed nipple defines a ~~characterized in that the radial shoulder to engage a ball when the ball is moved on the underside of the feed nipple (2) permits a movement of the ball in the locking direction by in connection with the annular shoulder (17) of the piston (3).~~

16. (currently amended): The quick-action clamping cylinder as claimed in claim 4 24, characterized in that the quick-action clamping cylinder holds the feed nipple (2, 2') in the housing (4) with self-locking, so that the balls (5) enter into positive locking engagement with the feed nipple (2, 2').

17. (currently amended): The quick-action clamping cylinder as claimed in claim 4 25, characterized in that the quick-action clamping cylinder provides a block closure such that the locking of the feed nipple (2, 2') takes place under the force of the spring assembly (8) which moves the piston to ~~press the balls (5) in their~~ into engagement with ~~position on the feed nipple (2, 2'), and the unlocking of the quick-action clamping cylinder takes place~~ occurs under the effect of pressure oil on the piston which is introduced into the housing (4) into said pressure chamber. ~~the space between the underside of the lid (1) and the top face of the piston (3).~~

18. (currently amended): The quick-action clamping cylinder as claimed in claim 4 ~~15, characterized in that in which in the locked position the locking balls (5) are assigned on the one hand to are supported by~~ raised surfaces of the ball support, ~~for in the quick-action clamping cylinder in the locked state in a form-fit manner, and, on the other hand, are clamped on~~ against the underside of the lid (1), as a result of which they are no longer movable and ~~bear in this~~ reside in a defined manner in the an associated annular recess ~~on defined by said radial shoulder of~~ the feed nipple (2, 2') so that the latter is absolutely locked and is secured free from play.

19. (currently amended): The quick-action clamping cylinder as claimed in claim 4 ~~24, in which the piston comprises first and second beveled portions, said first beveled portion moving the balls characterized in that, in the locking movement of the piston (3), a greater bevel (18) first bears on the balls (5) in the high-speed stroke and moves these radially inward~~ toward in the direction of the feed nipple (2), and, said second beveled portion transmitting the force of the spring assembly to the balls to hold the balls against the feed nipple such that the ratio of the force exerted on the balls by said second beveled portion to the spring force is as soon as the balls (5) are then bearing with a form fit on the associated bevel on the feed nipple (2), a bevel (19) also bears on the circumference of the balls (5), and, with this bevel (19), the relatively large spring force of the spring (8) is transmitted to the balls (5), specifically in a ratio of about 6.5:1, which means the spring force of the spring (8) is translated approximately by 6.5 times to the balls (5), which whereby the balls bear with precisely correspondingly great locking force on a the feed nipple (2).

20. (currently amended): The quick-action clamping cylinder as claimed in claim 4 ~~25, in which said pressure chamber is characterized in that, by forming comprising a radially outward and approximately~~ substantially annular and narrow ~~pressure chamber (16) for pressure oil, whereby~~ the entire underside of the quick-action clamping cylinder is kept free from pressure oil.

21. (currently amended): The quick-action clamping cylinder as claimed in claim 4 ~~24, characterized in that, because of the complete freedom of the central interior of the quick-action clamping cylinder and of any pressure oil chambers, because these are offset~~

~~radially outward, corresponding outlet openings can be routed comprising bores extending to outlet openings from the interior of the clamping cylinder, and from these outlet openings, for example, to convey drilling water and a medium carrying chips and dirt and the like outwardly and downwardly from the clamping cylinder can flow off downward.~~

22. (currently amended): The quick-action clamping cylinder as claimed in claim 4 ~~24, characterized in that~~ in which a screw-on the base (23; 38) ~~forms~~ defines one or more axially projecting pegs (39) which engage associated drill ~~bushes~~ bushings (40) of a perforated grid plate and thus secure the quick-action clamping cylinder on ~~this~~ said perforated grid plate.

23. (currently amended): The quick-action clamping cylinder as claimed in claim 4 ~~8, in which~~ characterized in that ~~the quick-action clamping cylinder can also be installed embedded in a central recess in a machine bench, and pressure oil can be~~ is introduced into the clamping cylinder radially from the side of the machine bench. ~~directly guided in from the side radially in the machine bench to the quick-action clamping cylinder built into the central recess.~~

24. (new) A quick-action clamping cylinder for anchoring a feed nipple located on any predetermined part, the quick-action clamping cylinder comprising:

a housing;

a lid enclosing a space within the housing

an insert module adapted to fit into the space within the housing, said insert module having a spring assembly, a sealable chamber containing said spring assembly, a spring support base defining an annular seat for one side of the spring assembly, and a ball support member for supporting a plurality of balls movable laterally within the space and adapted releasably to secure the feed nipple in a locked position within the module, an underside of said ball support member and said spring support base being interconnected by a threaded member to compress said spring to a predetermined tensioned position;

a piston within said housing and biased against each of said balls by said spring assembly to move said balls laterally to engage and lock the feed nipple within the module,

said piston being displaceable against the bias of said spring assembly under fluid pressure in said housing to release said balls from the feed nipple;

a base plate connected to the clamping cylinder and defining a drill bushing; and

an adapter connected by said threaded member to said insert module, said adapter having a peg-like extension engaging said drill bushing.

25. (new) The quick-action clamping cylinder as claimed in claim 12, in which the piston has an annular radial shoulder, a pressure chamber for oil being defined between the underside of the lid and said annular shoulder.